



**Massachusetts Bay
Transportation Authority**

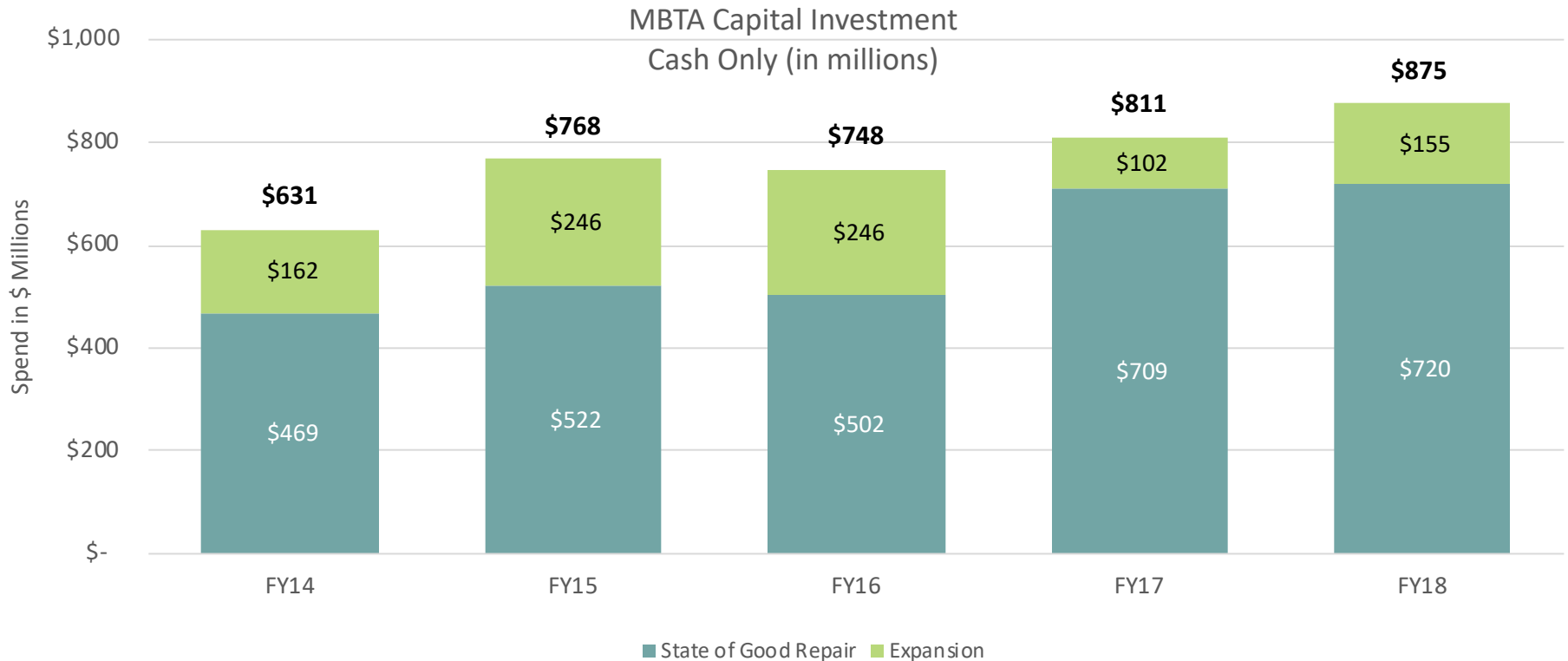
FY20-24 Capital Investment Plan

Overview, Sources, and Programs

2/4/2019



In 2018, the MBTA invested \$875M in its capital program – the most ever.



- Total MBTA capital investment FY14-18: **\$3.8 billion**
 - \$2.9 Billion for State of Good Repair
- MBTA projected capital investment FY19-23: **\$8.0 billion**
 - \$6.7 billion for State of Good Repair



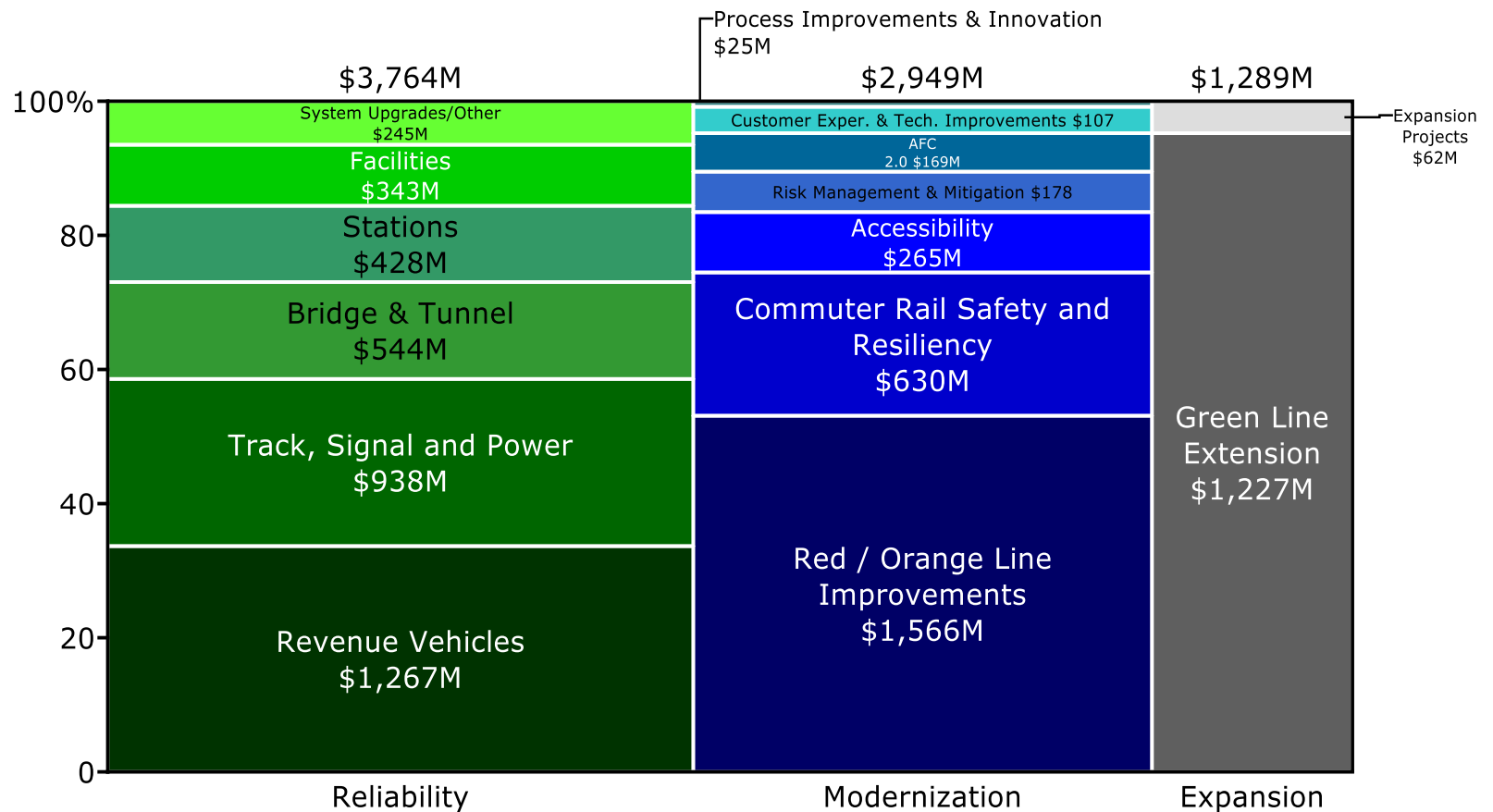
The MBTA set aggressive capital Key Performance Indicators (KPIs) for FY 2019

Key Performance Indicator	FY 2018 target	FY 2018 actual	FY 2019 target
Total capital investment	\$942M	\$875M	~\$1 billion
State of Good Repair capital investment	\$790M	\$720M	\$850M
Capital construction contracts awarded	\$450M	\$639M	>\$650M
Vehicle procurement contracts awarded	New for FY19	New for FY19	~\$300M
Percentage of FY19-23 CIP projects underway/in progress	New for FY19	New for FY19	>75%
% of FY19 Capital Investment Plan Delivered	New for FY19	New for FY19	~95%



FY19-23 CIP invests \$8 billion organized by *Priority* and *Program*

FY19-23 CIP Spending by Priority and Program (\$M)





Next evolution of the MBTA CIP: Continuous improvement

FY17-21 CIP

- Introduced a new strategic approach to produce a balanced portfolio of projects
- Represented the first fully integrated MassDOT-MBTA CIP
- After years of underinvestment, challenged the agency to spend \$6.6 billion over the five year window



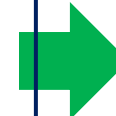
FY18-22 CIP

- Continued the structure and process introduced the prior year
- Focused on fully funding prior commitments, project readiness, acceleration, and targeted updates
- Expanded ambitious capital spending goals to \$7.4 billion over five years



FY19-23 CIP

- Aligned priorities with strategic goals and plans
- Issued agency-wide call for projects to identify needs and build pipeline
- Incorporated Transit Asset Management (TAM) data
- Scored all project proposals using PSAC methodology
- Produced \$8 billion plan



FY20-24 CIP

- Incorporate **Transit Asset Management (TAM)** Plan data and findings
- Use CIP process to implement first set of **Focus40** "next priorities"
- Leverage **PMIS** for project intake, eval, and prioritization
- Focus on **execution and optimization** of capital program

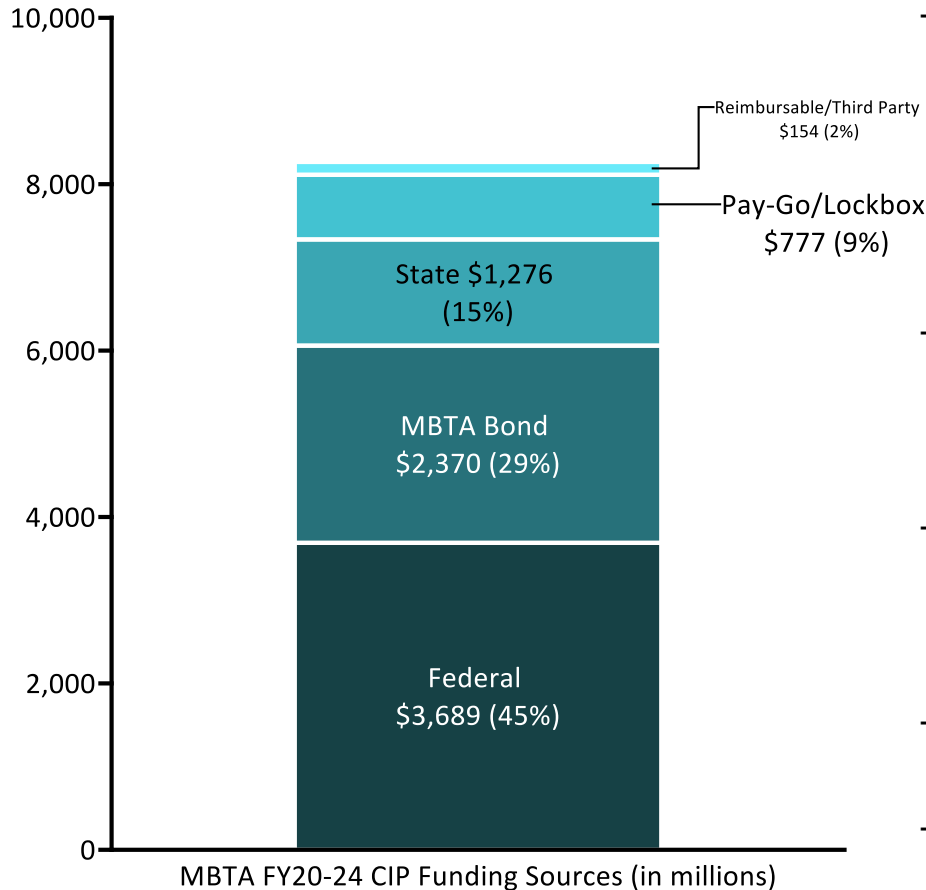




FY20-24 CIP Funding Sources: Estimated ~\$8B available for the next five year plan

Sources highlights:

- **Federal** funds continue to be the single largest source of capital for the MBTA
 - GLX Full Funding Grant Agreement: \$996M overall; \$872M in FY20-24
 - FTA Funds: \$2.7B in FY20-24 assumes annual increases in formula allotment
- **MBTA Bonds**, including Sustainability Bonds, support the 20% match for Federal projects, as well as MBTA-only funded projects
- **State** funds include Rail Enhancement Program special obligation bonds for GLX, Red Line/Orange Line improvements, and other projects
- **Pay-Go/Lockbox** reflects an assumption of \$150M/year, plus prior year carryover
- **Other** funding sources include municipal contributions and other reimbursements





FY20-24 CIP Funding Sources: Risks

- **Federal Funds**

- Current surface transportation authorization ("FAST Act") expires on September 30, 2020
- Recent Congressional Budget Office report estimates that the transit account within the Highway Trust Fund (HTF) will be exhausted by 2021
- CIP sources assume Congress will take action to reauthorize and replenish HTF

- **MBTA Bonds**

- Assumes substantial revenue bond issuance to support the capital program
- Contingent on operating budget ability to support debt service
- Market variables (interest rates, credit spreads, etc.) will impact the cost of new debt

- **Pay-Go/Lockbox**

- Assumes continued operating budget discipline to reinvest savings in capital
- Assumes continued State support via \$60 million in bond cap (in lieu of operating assistance)



FY20-24 CIP Programs: Proposed structure is consistent with FY19-23 Plan with one new program - *Green Line Transformation*

- 1. Reliability:** Maintain and improve the overall condition and reliability of the transportation system
- 2. Modernization:** Modernize the transportation system to make it safer and more accessible and to accommodate growth
- 3. Expansion:** Expand diverse transportation options for communities throughout the Commonwealth



Reliability

- Bridges and Tunnels
- Facilities
- Revenue Vehicles
- Stations
- System Upgrades
- Track, Signals, and Power

Modernization

- Accessibility
- AFC 2.0
- Commuter Rail Safety and Resiliency
- Customer Experience and Technology Improvements
- Process Improvements and Innovation
- Red / Orange Line Improvements
- Risk Management and Mitigation
- **Green Line Transformation**

Expansion

- Green Line Extension
- Expansion Projects



FY20-24 CIP Programs: Reliability

FY20-24 CIP Programs	Purpose and Need Statement	Measure
Priority 1/Reliability		
Bridge & Tunnel	This program repairs, reconstructs and replaces MBTA commuter rail and transit bridges and tunnels system-wide	Asset condition: structural deficiency and load rating
Facilities	This program rehabilitates and upgrades maintenance and administrative facilities that support MBTA operations.	Asset condition: FTA TERM Scale (1-5)
Revenue Vehicles	This program rehabilitates and replaces the MBTA revenue fleet, which includes commuter rail, heavy rail, light rail, bus and ferry units.	Asset age: Useful life benchmark
Stations	This program rehabilitates and upgrades MBTA stations and parking facilities (e.g., commuter rail, commuter boat, subway and bus stations)	Asset condition: FTA TERM Scale (1-5)
System Upgrades	This program upgrades a wide range of MBTA systems including communications, security, computer technology, fare collection, asset management and environmental remediation systems. It also rehabilitates non-revenue vehicles and equipment.	Asset age: Useful life benchmark (for non-revenue vehicles)
Track, Signal and Power	This program rehabilitates, replaces and upgrades track, signal and power assets across the commuter rail and transit system.	Asset condition, age, and performance restrictions



FY20-24 CIP Programs: Modernization

FY20-24 CIP Programs	Purpose and Need Statement	Measure
Priority 2/Modernization		
Accessibility	This program improves accessibility at MBTA commuter rail, subway and bus stations. This program is necessary to meet the goals of the Authority's Plan for Accessible Transit Infrastructure ("PATI").	PATI Implementation; increased number of accessible stations
AFC 2.0	The AFC 2.0 program will implement a new reliable and convenient fare payment and collection system, integrated across all modes, to replace CharlieCards/Tickets and their supporting hardware and software.	AFC 2.0 Project Milestones
Commuter Rail Safety and Resiliency	This program includes projects that improve the safety and resiliency of the Commuter Rail network, including the implementation of Positive Train Control.	PTC/ATC Project Milestones
Customer Experience and Technology Improvements	This program includes improvement projects that modernize the system and enhance customers' experience.	Improved customer experience; survey results
Process Improvements & Innovation	This program includes investments in innovations that enhance productivity or quality of MBTA services and capital programs.	TBD
Red / Orange Line Improvements	The Red Line and Orange Line Improvements program includes the set of vehicle and infrastructure investments needed to fully modernize the fleet and achieve the service goal of three minute headways on the Red Line and three and a half minute headways on the Orange Line.	Project milestones; Three min headways on the RL and four min headways on the OL
Risk Management & Mitigation	This program implements risk management initiatives as well as proactive efforts to improve workplace safety and system security	TBD
Green Line Transformation	This program will improve the Green Line quality of service, including enhanced capacity and accessibility, through fleet modernization, infrastructure/facilities upgrades and state-of-the-art technology	Capacity, service delivery, accessibility, customer ex, and safety metrics



FY20-24 CIP Programs: Expansion

FY20-24 CIP Programs	Purpose and Need Statement	Measure
Priority 3/Expansion		
Green Line Extension	The Green Line Extension program includes the vehicles, stations and infrastructure to extend the Green Line from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford.	GLX Project Milestones
Expansion Projects	This program makes targeted expansions in order to improve access to transit, including the Silver Line to Chelsea, Blue Hill Avenue Station on the Fairmount Line and MBTA support for early action South Coast Rail items.	TBD



FY20-24 CIP Program Sizes: Reliability

Primary program size changes:

1. Reallocate projects and funding to Green Line Transformation (GLT) for SGR improvements and initial investments for Type 10 vehicle procurement
2. Adjusting program sizes to reflect updated cash flows for major projects reaching or nearing completion (e.g. PTC, Red Line/Orange Line, GLX)

FY19-23 CIP Programs	FY19-23 Amount (in millions)	FY20-24 Amount (in millions)	Delta from FY19-23 CIP	Comments
Priority 1/Reliability				
Bridge and Tunnel	544	489	(55)	Reallocation to GLT
Facilities	343	327	(16)	Reallocation to GLT
Revenue Vehicles	1,267	1,000	(267)	Reallocation to GLT
System Upgrades/Other	245	245	-	No change
Stations	428	367	(61)	Reallocation to GLT
Track, Signal and Power	938	731	(208)	Reallocation to GLT
Subtotal, Priority 1/Reliability	\$3,765	\$3,158	(\$607)	



FY20-24 CIP Program Sizes: Modernization and Expansion

FY19-23 CIP Programs	FY19-23 Amount (in millions)	FY20-24 Amount (in millions)	Delta from FY19-23 CIP	Comments
Priority 2/Modernization				
Accessibility	265	198	(67)	Reallocation to GLT
AFC 2.0	169	204	34	Reflects updated AFC 2.0 cash flows
Commuter Rail Safety and Resiliency	630	530	(100)	Reflects completion of PTC
Customer Experience and Tech Improvements	116	105	(11)	Reallocation to GLT
Green Line Transformation	0	954	954	New Program
Process Improvements & Innovation	25	25	-	No change
Red / Orange Line Improvements	1,566	1535	(31)	Reflects updated RL/OL cash flows
Risk Management and Mitigation	178	27	(151)	Reallocation to GLT
Subtotal, Priority 2/Modernization	\$2,949	\$3,578	\$629	

Priority 3/Expansion				
Green Line Extension	1,227	1,299	72	Reflects updated GLX cash flows
Expansion Projects	62	49	(13)	Reflects current project cash flows
Subtotal, Priority 3/Expansion	\$1,289	\$1,348	\$59	



FY20-24 CIP Project Selection: Projects are scored using PSAC Criteria

Legislatively-mandated Project Selection Advisory Council (PSAC) established uniform project selection criteria to be used across MassDOT divisions in preparing the CIP

System Preservation	<ul style="list-style-type: none">• Projects should contribute to a state of good repair on the transportation system.
Mobility	<ul style="list-style-type: none">• Projects should provide modal options efficiently and effectively.
Cost Effectiveness	<ul style="list-style-type: none">• Projects should result in benefits commensurate with costs and should be aimed at maximizing the return on the public's investment.
Economic Impact	<ul style="list-style-type: none">• Projects should support strategic economic growth in the Commonwealth.
Safety	<ul style="list-style-type: none">• Projects should contribute to the safety and security of people and goods in transit.
Social Equity & Fairness	<ul style="list-style-type: none">• Projects should equitably distribute both benefits and burdens of investments among all communities.
Environmental & Health Effects	<ul style="list-style-type: none">• Projects should maximize the potential positive health and environmental aspects of the transportation system.
Policy Support	<ul style="list-style-type: none">• Projects should get credit if they support local or regional policies or plans; or state policies not addressed through the other criteria.



FY20-24 MBTA CIP Project Selection Criteria (1 of 2)

Criteria	Description	Factors
System Preservation	The extent to which the project contributes to a state of good repair on the transportation system and aligns with asset management goals and strategies.	Asset Condition
		Impact to Other Assets
		Operations Criticality (Service Disruption)
		Climate Change and Severe Weather Resiliency
Mobility	The extent to which the project is intended to provide modal options efficiently and effectively for all users through benefits to reliability, accessibility, and other measures of service quality.	Impact on Reliability
		Impact on Accessibility
		Impact on Customer Experience
		Impact on Riders
Cost Effectiveness	The extent to which the project impacts operating costs and revenues and maximizes the return on the public's investment	Impact on Operating Costs
		Impact on Operating Revenues
Safety	The extent to which the project addresses safety issues and hazards and security vulnerabilities and risks.	Impact on System Safety
		Impact on System Security
Environmental and Health Effects	The extent to which the project: 1) meets State goals of improving Air Quality and reducing Greenhouse Gases and 2) results in a reduction of pollution and/or consumption of natural resources	Air Quality and GHG Reduction
		Reduce Pollution and/or Consumption of Natural Resources



FY20-24 MBTA CIP Project Selection Criteria (1 of 2)

Criteria	Description	Factors
Policy Support	The extent to which the project is aligned with the MBTA Strategic Playbook and utilizes an innovative strategy	Alignment with Focus40
		Utilizes an Innovative Strategy
Economic Impact <i>(Only required for expansion/new capacity projects)</i>	The extent to which the project is intended to provide modal options efficiently and effectively for all users through benefits to reliability, accessibility, and other measures of service quality.	Impact on Connectivity to Employment Centers, Destination Districts, Priority Places identified in Focus40
		Impact on Corridors at or Near Capacity
		Impact on Communities with Transit-Supportive Land Use
		Impact on Commuting Costs
Social Equity <i>(Only required for expansion/new capacity projects)</i>	The extent to which the project equitably distributes economic, social, and health benefits to residents and local businesses.	Benefits to Environmental Justice (EJ) and Title VI Communities
		Additional Equity Benefits to Protected Populations

MBTA leadership will also consider project readiness, resource impacts, and sequencing/scheduling when prioritizing projects for the FY20-24 CIP



Next steps

Board Engagement

- Capital Programs Committee (subcommittee of MassDOT Board) is the forum for monthly MassDOT CIP updates and decisions; FMCB will be updated concurrently and upon request
- Next Capital Programs Committee meeting scheduled for February 11
 - MassDOT and MBTA will present engagement timeline, estimated funding sources, and proposed program sizes

Internal Engagement

- **CIP Intake:** Continue to review and refine proposals for new projects and substantial increases to existing projects
- **Cash Flows:** Working with 20+ MBTA Departments to update and refine budgets and cash flow projections for existing projects
- **Scoring:** Finalize selection criteria and convene evaluation teams to score project proposals beginning week of February 4
- **Decisions:** Facilitate senior leadership meetings to prioritize projects based on scoring results, project readiness, and other factors in early March